Penelitian dilaksanakan di PT Asiatic Persada, Divisi Empang Buliaro, yang terletak di Kecamatan Bajubang, Kabupaten Batanghari, Provinsi Jambi, bulan Oktober 2012. Penelitian bertujuan mengkaji sifat fisik dan kimia tanah di bawah tanaman penutup tanah *Mucuna bracteacta spp* pada umur  yang berbeda dan pada kondisi lahan yang berbeda (kondisi lahan bukan tapak timbun dan tapak timbun). Metode penelitian menggunakan metode survai. Pengambilan sampel tanah berdasarkan perbedaan umur *M. bractaeata spp* antara lain: lahan tanpa *M.  bracteata spp*, *M. bracteata spp* tahun tanam 2011 dan *M. bracteata spp* tahun tanam 2010. Perbedaan umur tersebut berada pada masing-masing kondisi lahan. Masing-masing lokasi diambil 3 titik. Sifat fisik tanah yang dikaji anatara lain: Tekstur, berat volume (BV), berat jenis (BJ), porositas, dan kemantapan agregat. Sedangkan untuk sifat kimia yan di kaji antara lain : pH $H_2O$, bahan organik (BO), C-organik, N-total, P, kalsium (Ca), Magnesium (Mg), K-tersedia, Kapasitas Pertukaran Kation (KPK). Hasil penelitian menunjukan lokasi lahan bukan tapak timbun, *M. bracteata spp* tahun tanam 2010 (BT 2010), mempunyai sifat fisik tanah kemantapan agregat dan BJ yang paling baik, serta mempunyai kandungan sifat kimia tanah P dan Ca yang paling baik. Lokasi lahan tapak timbun, *M. bracteata spp* tahun tanam 2010 (T 2010) mempunyai sifat fisik tanah BV dan porositas tanah yang paling baik, serta mempunyai kandungan sifat kimia tanah BO, N-total, K-tersedia, Ca dan Mg yang paling baik. Hasil analisis regresi dan korelasi yang mempunyai koefisien korelasi tertinggi adalah BO dengan BV (r = -0,6682) dan BO dengan P (r = 0,7956). Nilai tersebut tergolong kuat.

Kata Kunci: *Mucuna bracteata spp*; Lahan Bukan Tapak Timbun dan Tapak Timbun; Sifat Fisik Kimia Tanah.

This study was conducted at Asiatic Persada Company, in Empang Buliaro Division, Bajubang sub-district, Batanghari Regency, Jambi, on October 2012. This study was aimed to elaborate of physical and chemical soil on *Mucuna bracteata spp* in the different and condition ages (the condition of land is unaccumulation or accumulation land). Methods of research using survey methods. Soil sampling locations based at the difference plant age *M. bracteata spp* include: land without *M. bracteata spp* plant, land with *M. bracteata spp* planted in 2011, land with *M. bracteata spp* planted in 2010. *M. bracteata spp* age differences on each land conditions. Each location taken 3 points. The physical properties include: Texture, agregate stability, bulk density, particel density and porosity. While the chemical properties include: pH $H_2O$, organic material, organic matter, total Nitrogen, Phosfor, Calcium, Magnesium, K-available, Cation Exchange Capacity (CEC). The results showed the location of the land unaccumulation *M. bracteata spp* planting year 2010 (BT 2010), has the physical properties of soil aggregate stability and the best BJ, and have the content of the chemical properties of soil P and Ca most good. Location of the land accumulation *M. bracteata spp* planting year 2010 (T 2010) has a BV of soil physical properties and porosity of the soil, as well as having BO content of soil chemical properties, total Nitrogen, K- available, Ca and Mg most good. Regression and correlation analysis results which have the highest correlation coefficient is BO with BV (r = -0.6682) and BO with P (r = 0.7956). The value is relatively strong.

Key words: *Mucuna bracteata spp*, an accumulation land and unaccumulation land, physical and chemical soil.